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CAPITOL PATENT & TRADEMARK LAW FIRM, PLLC
P.O. BOX 1995
VIENNA, VA 22183

EXAMINER	
MOORE, IAN N	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/620,053
Filing Date: July 20, 2000
Appellant(s): CAO, YANG

John E. Curtin
For Appellant

EXAMINER'S ANSWER

This is in response to the **corrected** appeal brief filed 8/29/08 appealing from the Office action mailed 3/05/08.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US006865179B1	CHANG ET AL.	12-2003
US006330239B1	SUZUKI	12-2001
US005920412A	CHANG	7-1999
US006657757B1	CHANG	12-2003
US005570355A	DAIL ET AL.	10-1996
US006574224B1	BRUECKHEIMER ET AL.	6-2003
US005982771A	CALDARA ET AL.	11-1999
US005832197A	HOUJI	11-1998
US006317426B1	AFANADOR ET AL.	11-2001
US006381238B1	HLUCHYJ	4-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang'412 (US005920412A) in view of Chang'757 (US006657757B1).

Regarding Claims 1 and 12, Chang'412 discloses a hybrid telecommunication switch comprising at least one circuit switch fabric (see FIG. 4, optical network routing apparatus, ONRA 14d) comprising:

at lease one circuit switch fabric (see FIG. 4, STM (Synchronous Transfer Mode) ADM 28 which switches/routes circuit switch-able synchronous (i.e. real time) data; see col. 9, lines 16-22);

at lease one packet switch fabric (see FIG. 4, ATM (Asynchronous Transfer Mode) ADM 32 which switches/routes cell/packet switch-able asynchronous (i.e. non-real time) data; see col. 9, lines 15-25); and

a controller (see FIG. 4, Type check 24; see col. 11, line 46-50; see col. 12, line 15-22) route traffic (see col. 11, line 1-16; signals/traffic) to the circuit switch fabric or packet switch fabric depending on an ATM service category/type of traffic (see FIG. 5, step 50,52 and 56; note that ATM service category/type are defined as real time or non-real time signals; and thus, when routing according to ATM service type/category one must route by determining whether the service signals are real-time or non-real time signals. Thus, routing to either STM/TDM system or ATM system according to type/category of service as STM real time signals/traffic or ATM real/non-real time signals/traffic; see col. 12, line 9-46; see col. 15, line 25-52).

Chang'412 does not explicitly disclose IP traffic.

However, it is well known in the art that IP traffic can be transported over STM/SONET/TDM, and IP traffic can also be transported over ATM. Chang'757 teaches routing IP traffic to the circuit switch system (see FIG. 1, SONET (Synchronous Optical Network) system 131, which is also known as Synchronous System) or packet switch system (see FIG. 1, ATM system 131); note that IP traffic/router 112 is coupled to ATM or SONET system 131; see FIG. 1, see col. 9, line 1-5).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide routing IP traffic over ATM/SONET system, as taught by Chang'757 in the system of Chang'412, so that it would combine the advantages of circuit-switching and packet-switching IP technologies; and it will also provide low latency, high throughput, and cost-effective bandwidth-on demand; see Chang'757 col. 9, line 1920-22; see col. 8, line 35-39.

3. Claims 2, 3,7,13, 14,28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang'412 in view of Chang'757, and further in view of Dail (US005570355A).

Regarding Claim 28, Chang'412 discloses a hybrid telecommunication switch comprising at least one circuit switch fabric (see FIG. 4, optical network routing apparatus, ONRA 14d) comprising:

at lease one circuit switch fabric (see FIG. 4, STM ADM 28; see col. 9, lines 16-22);

at lease one packet switch fabric (see FIG. 4, ATM ADM 32; see col. 9, lines 15-25); and

a controller (see FIG. 4, Type check 24; see col. 11, line 46-50; see col. 12, line 15-22) route traffic (see col. 11, line 1-16; signals/traffic) to the circuit switch fabric or packet switch

fabric depending on an ATM service category/type of traffic (see FIG. 5, step 50,52 and 56; note that ATM service category/type are defined as real time or non-real time signals; and thus, when routing according to ATM service category one must route by determining whether the service signals are real-time or non-real time signals. Thus, routing to either STM/TDM or ATM ADMs according to type of service as STM real time signals/traffic or ATM real/non-real time signals/traffic; see col. 12, line 9-46; see col. 15, line 25-52);

Chang'412 does not explicitly disclose IP traffic. However, it is well known in the art that IP traffic can be transported over STM/SONET/SDH, and IP traffic can also be transported over ATM. Chang'757 teaches IP traffic/router 112 is coupled to ATM/SONET system 131 (see FIG. 1, see col. 9, line 1-5).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide routing IP traffic over ATM/SONET system, as taught by Chang'757 in the system of Chang'412, so that it would combine the advantages of circuit-switching and packet-switching IP technologies; and it will also provide low latency, high throughput, and cost-effective bandwidth-on demand; see Chang'757 col. 9, line 1920-22; see col. 8, line 35-39.

Neither Chang'412 nor Chang'757 explicitly disclose allocate switch fabric to traffic falling within an ATM service category; and allocate available switch resources, as indicated by a resource table, to received traffic request.

However, Dail discloses allocate circuit switch fabric to traffic falling within an ATM service category, or provisioning a portion of the switch resources for circuit switch traffic (see

FIG. 11, bandwidth controller 435 allocates STM or ATM/CBR calls in 1112; see col. 16, line 35-57; also see FIG. 7); and

allocate available circuit switch resources, as indicated by a resource table, to received traffic request, or allocate the remaining portion of the switch resources to non-STM traffic as a controller route traffic to the switch fabric (see FIG. 11, allocates ATM/VBR calls in 1101 and 1102; see col. 16, line 35-57; also see FIG. 13-14; see col. 17, line 25 to col. 18, line 34; note that buffer maintains table/registers for allocation; also see FIG. 7, dynamic mark between STM and ATM bandwidth).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide allocation circuit switching, as taught by Dail, in the combined system of Chang'412 and Chang'757, so that it would adapt to the changing demands of a mix of STM and ATM applications, and efficiently allocates bandwidth; see Dail col. 2, line 53-66.

Regarding Claim 33, Chang'412 discloses a hybrid telecommunication switch comprising at least one circuit switch fabric (see FIG. 4, optical network routing apparatus, ONRA 14d) comprising:

at lease one circuit switch fabric (see FIG. 4, STM ADM 28; see col. 9, lines 16-22);

at lease one packet switch fabric (see FIG. 4, ATM ADM 32; see col. 9, lines 15-25); and

a controller (see FIG. 4, Type check 24; see col. 11, line 46-50; see col. 12, line 15-22) route traffic (see col. 11, line 1-16; signals/traffic) to the circuit switch fabric or packet switch fabric depending on an ATM service category/type of traffic (see FIG. 5, step 50,52 and 56; note that ATM service category/type are defined as real time or non-real time signals; and thus, when

routing according to ATM service category one must route by determining whether the service signals are real-time or non-real time signals. Thus, routing to either STM/TDM or ATM ADMs according to type of service as STM real time signals/traffic or ATM real/non-real time signals/traffic; see col. 12, line 9-46; see col. 15, line 25-52);

Chang'412 does not explicitly disclose IP traffic.

However, it is well known in the art that IP traffic can be transported over STM/SONET/SDH, and IP traffic can also be transported over ATM. Chang'757 teaches IP traffic/router 112 is coupled to ATM/SONET system 131 (see FIG. 1, see col. 9, line 1-5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide routing IP traffic over ATM/SONET system, as taught by Chang'757 in the system of Chang'412, so that it would combine the advantages of circuit-switching and packet-switching IP technologies; and it will also provide low latency, high throughput, and cost-effective bandwidth-on demand; see Chang'757 col. 9, line 1920-22; see col. 8, line 35-39.

Neither Chang'412 nor Chang'757 explicitly disclose allocate switch fabric to traffic falling within an ATM service category; and allocate available switch resources, as indicated by a resource table, to received traffic request.

However, Dail discloses allocate circuit switch fabric to traffic falling within an ATM service category, or provisioning a portion of the switch resources for circuit switch traffic (see FIG. 11, bandwidth controller 435 allocates STM or ATM/CBR calls in 1112; see col. 16, line 35-57; also see FIG. 7); and

allocate available circuit switch resources, as indicated by a resource table, to received traffic request, or allocate the remaining portion of the switch resources to non-STM traffic as a controller route traffic to the switch fabric (see FIG. 11, allocates ATM/VBR calls in 1101 and 1102; see col. 16, line 35-57; also see FIG. 13-14; see col. 17, line 25 to col. 18, line 34; note that buffer maintains table/registers for allocation; also see FIG. 7, dynamic mark between STM and ATM bandwidth).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide allocation circuit switching, as taught by Dail, in the combined system of Chang'412 and Chang'757, so that it would adapt to the changing demands of a mix of STM and ATM applications, and efficiently allocates bandwidth; see Dail col. 2, line 53-66.

Regarding Claim 2, claim 2 discloses all the limitations of the respective claim 28 and 33 above. Therefore, it is subjected to the same rejections as set forth in claim 28 and 33.

Regarding Claim 3, claim 3 discloses all the limitations of the respective claim 28 and 33 above. Therefore, it is subjected to the same rejections as set forth in claim 28 and 33.

Regarding Claim 7, claim 7 discloses all the limitations of the respective claim 28 and 33 above. Therefore, it is subjected to the same rejections as set forth in claim 28 and 33.

Regarding Claim 13, claim 13 discloses all the limitations of the respective claim 28 and 33 above. Therefore, it is subjected to the same rejections as set forth in claim 28 and 33.

Regarding Claim 14, claim 14 discloses all the limitations of the respective claim 28 and 33 above. Therefore, it is subjected to the same rejections as set forth in claim 28 and 33.

Regarding Claim 18, claim 2 discloses all the limitations of the respective claim 28 and 33 above. Therefore, it is subjected to the same rejections as set forth in claim 28 and 33.

4. Claim 4-6 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang'412 in view of Chang'757 and Dail as applied to claim 2 above, and further in view of Brueckheimer (US006574224B1).

Regarding Claims 4 and 15, the combined system of Chang'412, Chang'757 and Dail discloses routing IP traffic associated with a ATM service category to the circuit switch fabric (see Chang'412 FIG. 5, step 50, 52 and 56; routing to STM ADM according to STM real time signals/traffic (i.e. ATM service category); see col. 12, line 9-46; see col. 15, line 25-52).

Neither Chang'412 nor Chang'757 explicitly disclose constant bit rate (CBR). However, CBR is well known in the art for classifying real time application such as voice and video. In particular, Brueckheimer discloses routing traffic associated with a ATM service category to the circuit switch fabric (see FIG. 1, AAL 1 traffic/data in Voice Switch 25; FIG. 14, voice AAL 1 in AAL/IP interworking module; or FIG. 7, voice AAL 1 in VoIP AAL interworking module; see col. 6, lines 47-65; note that traffic/data is related/associated with AAL 1 (i.e. CBR category) and routed toward the voice switch/AAL/IP interworking module).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide switching AAL 1 to voice switch, as taught by Brueckheimer, in the combined system of Chang'412 and Chang'757, so that it would provide a functional partionining of devices that is an optimal separation of concerns for traffic management, quality

of service (QoS) controls, buffer depth scaling and low latency; see Brueckheimer col. 3, line 10-33.

Regarding Claims 5 and 16, the combined system of Chang'412 and Chang'757 discloses routing IP traffic associated with a real time ATM service category to the circuit switch fabric (see Chang'412 FIG. 5, step 50, 52 and 56; routing to STM ADM according to STM real time signals/traffic (i.e. ATM service category); see col. 12, line 9-46; see col. 15, line 25-52).

Neither Chang'412 nor Chang'757 explicitly disclose variable bit rate (VBR). However, rt-VBR is well known in the art for classifying real time application. In particular, Brueckheimer discloses routing traffic associated with a rt-VBR ATM service category to the circuit switch fabric (see FIG. 1, AAL 2 traffic/data in Voice Switch 25; FIG. 14, voice AAL 2 in AAL/IP interworking module; or FIG. 7, voice AAL 2 in VoIP AAL interworking module; see col. 6, lines 47-65; note that traffic/data is related/associated with AAL 2 (i.e. real time VBR category) and routed toward the voice switch/AAL/IP interworking module).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide switching AAL 2 to voice switch, as taught by Brueckheimer, in the combined system of Chang'412 and Chang'757, for the as motivation as stated above in claim 4.

Regarding Claim 6 and 17, the combined system of Chang'412 and Chang'757 discloses routing IP traffic associated with a non-real time ATM service category to the packet switch fabric (see Chang'412 FIG. 5, step 50, 52 and 56; routing to ATM ADM according to ATM non-real time signals/traffic (i.e. ATM service category); see col. 12, line 9-46; see col. 15, line 25-52).

Neither Chang'412 nor Chang'757 explicitly disclose traffic not associated with CBR or rt-VBR ATM.

However, rt-VBR is well known in the art for classifying real time application. In particular, Brueckheimer discloses routing traffic associated with a rt-VBR ATM service category to the packet switch fabric (see FIG. 1, AAL 5 traffic/data in Data/Packet Switch 26; FIG. 14, AAL 5 in AAL/IP interworking module; or FIG. 7, AAL 5 in VoIP AAL interworking module; see col. 6, lines 47-65; note that traffic/data is related/associated with AAL 5 (i.e. neither CBR nor real time VBR category) and routed toward the data switch/AAL/IP interworking module).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide switching AAL 5 to packet switch, as taught by Brueckheimer, in the combined system of Chang'412 and Chang'757, for the as motivation as stated above in claim 4.

5. Claims 8, 19, 29 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang'412 in view of Chang'757 and Dail, as applied to claims 3, 13, 28, and 33 above, and further in view of Caldara (U.S. 5,982,771).

Regarding claims 8, 19, 29 and 34, the combined system of Chang'412, Chang'757 and Dail discloses the controller maintain a circuit switch resource table as described above in claims 3, 13, 28, and 33.

Neither Chang'412, Chang'757 nor Dail explicitly discloses egress resource table.

However, the above-mentioned claimed limitations are taught by Caldara'771. In particular, Caldara'771 teaches controller (see FIG. 1, Bandwidth Arbiter 12) maintains switch ingress (see FIG. 1, a combined system of memory/RAM/resource table 21,20,23 in Input port 14) and egress resource table (see FIG. 1, a combined system of memory/RAM/resource table 48,42,44,46 in Output port 16); see col. 5, lines 10 to col. 6, lines 35).

In view of this, having the combined system of Chang'412, Chang'757 and Dail, then given the teaching of Caldara, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Chang'412, Chang'757 and Dail, by providing output memory resource table in order to control bandwidth allocation, as taught by Caldara. The motivation to combine is to obtain the advantages/benefits taught by Caldara since Caldara states at col. 1, line 50 to col. 4, lines 25 that such modification would efficiently allocates the available bandwidth while assuring that minimum bandwidth and delay requirement of connects are satisfied.

Regarding Claim 19, claim 19 discloses all the limitations of the respective claim 8 above. Therefore, it is subjected to the same rejections as set forth in claim 8.

Regarding Claim 29, claim 29 discloses all the limitations of the respective claim 8 above. Therefore, it is subjected to the same rejections as set forth in claim 8.

Regarding Claim 34, claim 34 discloses all the limitations of the respective claim 8 above. Therefore, it is subjected to the same rejections as set forth in claim 8.

6. Claims 9, 20-22, 25-27, 30, 35-37 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang'412, Chang'757 and Dail, as applied to claims 3, 13, 28, and 33 above, and further in view of Houji (U.S. 5,832,197).

Regarding claim 9, the combined system of Chang'412, Chang'757 and Dail discloses all aspects of the claimed invention set forth in the rejection of claim 3 as described above.

Neither Chang'412, Chang'757 nor Dail explicitly discloses pass an traffic request to a destination node and to establish an traffic path after having determined that all nodes along the proposed path have accepted/allocated an traffic request.

However, the above-mentioned claimed limitations are taught by Houji'197. In particular, Houji'197 teaches pass an traffic request (see FIG. 1, Node N1; also see FIG. 2, step 20, connection request process and pass by Node N1) to a destination node (see FIG. 1, destination Node N5; see FIG. 2, to destination node, step 23) and to establish an traffic path (see FIG. 1, a path between N1 and N5; see FIG. 2, establishing the path, step 23-26) after having determined that all nodes (see FIG. 1, Nodes N2-N4, N7) along the proposed path (see FIG. 1, the lowest QoS path between N1 and N5; see FIG. 2, step 21) have accepted an traffic request (see FIG. 2, steps 23-26; accept request); see col. 2, lines 45 to col. 3, lines 27).

In view of this, having the combined system of Chang'412, Chang'757 and Dail, then given the teaching of Houji'197, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Chang'412, Chang'757 and Dail, by providing establishing end-to-end path between source and destination node upon accepting the connection request by the nodes along the path, as taught by Houji'197. The motivation to combine is to obtain the advantages/benefits taught by Houji'197 since a2 states at

col. 1, line 30 to col. 2, lines 2315 that such modification would provide an alternate routing in a connection-oriented network in which a plurality of nodes are interconnected by the communication links.

Regarding Claim 20, claim 20 discloses all the limitations of the respective claim 9 above. Therefore, it is subjected to the same rejections as set forth in claim 9.

Regarding Claim 21, claim 21 discloses all the limitations of the respective claim 9 above. Therefore, it is subjected to the same rejections as set forth in claim 9.

Regarding Claim 22, claim 22 discloses all the limitations of the respective claim 9 above. Therefore, it is subjected to the same rejections as set forth in claim 9.

Regarding Claim 25, claim 25 discloses all the limitations of the respective claim 9 above. Therefore, it is subjected to the same rejections as set forth in claim 9.

Regarding Claim 26, claim 26 discloses all the limitations of the respective claim 9 above. Therefore, it is subjected to the same rejections as set forth in claim 9.

Regarding Claim 27, claim 27 discloses all the limitations of the respective claim 9 above. Therefore, it is subjected to the same rejections as set forth in claim 9.

Regarding Claim 30, claim 30 discloses all the limitations of the respective claim 9 above. Therefore, it is subjected to the same rejections as set forth in claim 9.

Regarding Claim 35, claim 35 discloses all the limitations of the respective claim 9 above. Therefore, it is subjected to the same rejections as set forth in claim 9.

Regarding Claim 36, claim 36 discloses all the limitations of the respective claim 9 above. Therefore, it is subjected to the same rejections as set forth in claim 9.

Regarding Claim 37, claim 37 discloses all the limitations of the respective claim 9 above. Therefore, it is subjected to the same rejections as set forth in claim 9.

Regarding Claim 40, claim 40 discloses all the limitations of the respective claim 9 above. Therefore, it is subjected to the same rejections as set forth in claim 9.

Regarding Claim 41, claim 41 discloses all the limitations of the respective claim 9 above. Therefore, it is subjected to the same rejections as set forth in claim 9.

Regarding Claim 42, claim 42 discloses all the limitations of the respective claim 9 above. Therefore, it is subjected to the same rejections as set forth in claim 9.

7. Claims 10, 23, 31, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang'412, Chang'757, Dail, Houji, as applied to claims 3, 13, 28, and 33 above, and further in view of Brueckheimer.

Regarding Claim 10, the combined system of Chang'412, Chang'757, Dail and Houji discloses IP switch fabric, wherein the IP switch fabric is one kind of packet switched fabric, and routing IP traffic associated with a real time ATM service category to the circuit switch fabric (see Chang'412 FIG. 5, step 50,52 and 56; routing to STM ADM according to STM real time signals/traffic (i.e. ATM service category); see col. 12, line 9-46; see col. 15, line 25-52).

Neither Chang'412, Chang'757, Dail nor Houji explicitly disclose variable bit rate (VBR).

However, rt-VBR is well known in the art for classifying real time application. In particular, Brueckheimer discloses routing traffic associated with a rt-VBR ATM service category to the circuit switch fabric (see FIG. 1, AAL 2 traffic/data in Voice Switch 25; FIG. 14, voice AAL 2 in AAL/IP interworking module; or FIG. 7, voice AAL 2 in VoIP AAL

interworking module; see col. 6, lines 47-65; note that traffic/data is related/associated with AAL 2 (i.e. real time VBR category) and routed toward the voice switch/AAL/IP interworking module).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide switching AAL 2 to voice switch, as taught by Brueckheimer, in the combined system of Chang'412, Chang'757, Dail and Houji, for the as motivation as stated above in claim 4.

Regarding Claim 23, claim 23 discloses all the limitations of the respective claim 10 above. Therefore, it is subjected to the same rejections as set forth in claim 10.

Regarding Claim 31, claim 37 discloses all the limitations of the respective claim 10 above. Therefore, it is subjected to the same rejections as set forth in claim 10.

Regarding Claim 38, claim 38 discloses all the limitations of the respective claim 10 above. Therefore, it is subjected to the same rejections as set forth in claim 10.

(10) Response to Argument

A (1). Rejections under Chang'412 and the other references: Claims 1-10, 12-23, 25-31, 33-38, 40-42

The appellant argued that, "…Chang'412 fails to teach or suggest: (a) the routing of IP traffic of IP traffic to a circuit switch fabric or packet switch fabric; and (b) such routing depending on a ATM service category of the IP traffic as recited in claims 1 and 12…such rejection are inappropriate based on impermissible hindsight reconstruction…" in page 5-6.

In response to Appellant argument, the examiner respectfully disagrees with the argument above.

(1) The rejection is based upon a combined system of Chang'412 (US005920412A) and Chang'757 (US006657757B1). One must consider the combined system of Chang'412 and Chang'757 as a whole, rather than individually as incorrectly stated by appellants above. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

(2) Chang'412 discloses a hybrid telecommunication switch comprising at least one circuit switch fabric (**see FIG. 4, optical network routing apparatus, ONRA 14d**) comprising:

at lease one circuit switch fabric (**see FIG. 4, STM (Synchronous Transfer Mode) ADM 28 which switches/routes circuit switch-able synchronous (i.e. real time) data; see col. 9, lines 16-22**);

at lease one packet switch fabric (**see FIG. 4, ATM (Asynchronous Transfer Mode) ADM 32 which switches/routes cell/packet switch-able asynchronous (i.e. non-real time) data; see col. 9, lines 15-25**); and

a controller (**see FIG. 4, Type check 24; see col. 11, line 46-50; see col. 12, line 15-22) route traffic (see col. 11, line 1-16; signals/traffic**) to the circuit switch fabric or packet switch fabric depending on an ATM service category/type of traffic (see **FIG. 5, step 50,52 and 56; note that ATM service category/type are defined as real time or non-real time signals; and thus, when routing according to ATM service type/category one must route by determining whether the service signals are real-time or non-real time signals. Thus, routing to either STM/TDM system or ATM system according to type/category of service as STM real time signals/traffic or ATM real/non-real time signals/traffic; see col. 12, line 9-46; see col. 15, line 25-52**).

It is well known in the art that IP traffic can be transported over STM/SONET/TDM, and IP traffic can also be transported over ATM. In particular, Chang'757 teaches routing IP traffic to the circuit switch system (**see FIG. 1, SONET (Synchronous Optical Network) system 131, which is also known as Synchronous System**) or packet switch system (**see FIG. 1, ATM system 131); note that IP traffic/router 112 is coupled to ATM or SONET system 131; see FIG. 1, see col. 9, line 1-5**).

Thus, it is clear that the combined system of Chang'412 and Chang'757 discloses the claimed invention.

Moreover, "mapping IP traffic over ATM service categories" **is so well known in the art as standard defined RFC 2381, which is published one August 1998 (see prior art tab, with**

NPL filed on 9/10/2003). RFC 2381 standard discloses IP traffic is divided into Guarantee Service (GS) and Controlled-Load server (CLS) per ATM Forum UNI specification (*see RFC 2381 abstract*). RFC discloses IP traffic with GS mapping to CBR or rt-VBR, and IP traffic with CLS mapping to CBR, nrtVBR, ABR, which are ATM service categories (*see RFC 2381 section 2.1.1, 2.1.2).* Thus, it is also clear that IP traffic mapping to ATM service categories is well known in the art as defined by the RFC 2381.

In response to appellant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the appellant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case, Chang'412 simply discloses type check 24 which direct **traffic** to either STM circuit switch fabric 28 or to ATM cell/packet switch fabric 32 according to the real-time (constant bit rate, CBR) traffic or non-real time (variable bit rate, VBR) service categories. Note that real time CBR and non-real time VBR are ATM service categories utilized by ATM traffic model (see following response for detail). Chang'757 discloses routing IP traffic to STM/SONET or ATM switch fabric. Note that SONET system utilizes STM, thus STM and SONET is the same. Hence, it would have been obvious to provide the teaching of Chang'757 which is "**IP traffic**" that routes IP traffic to STM/SONET and ATM fabrics, in the Chang'412's "**traffic"** that route to STM and ATM fabrics based on ATM service

categories. In other word, it would have been obvious to modify Chang'412's "traffic" as Chang'757's "IP traffic" according to the teaching of Chang'757.

Thus, it is clear that the combination of Chang'412 and Chang'757 is not based on hindsight reconstruction, but it would have been obvious to one having ordinary skill in the art at the time the invention was made.

The appellant argued that, "…examiner states Chang'757 teaches routing IP traffic to a circuit switching system or packet switching system…However, examiner does not address whether Chang'757 accomplishes such routing depending on ATM service categories…Chang'757 discloses a typical **IP router 111 without any other explanation**...it is completely silent with respect to the routing IP traffic using ATM service categories....thus because the combination of Chang'412 and Chang'757 does not discloses the routing of IP traffic depending on an ATM service category such combination does not render claims...unpatentable based on obviousness..." in page 6.

In response to Appellant argument, the examiner respectfully disagrees with the argument above.

First, Appellant is reminded that the rejection is U.S.C 103 based on obviousness on the combined system of Chang'412 and Chang'757, not U.S.C. 102 based on anticipation. Thus, examiner is not required to address secondary reference Chang'757 accomplishing "routing depending on ATM service categories" since "traffic routing depending on ATM service categories" has already been disclosed by primary reference Chang'412. As set forth in response above, Chang'757 is used to show the well known teaching of routing "IP traffic" over packet switch fabric ATM or circuit switch fabric SONET. Thus, the argument is irrelevant since the

Appellant is erroneously performing a piecemeal analysis and arguing on the limitation that are being disclosed as a combined system of Chang'412 and Chang'757. As stated in above response that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references.

Second, the examiner never states that **IP router 111** is performing the routing of IP traffic. The office action clearly states **IP router 112** is routing IP traffic. Thus, Appellant was **unable to find any other explanation** of IP router 11 since it was never being recited or asserted by the examiner. Thus, Appellant argument is irrelevant and clearly an error since the arguments are based the Appellant's erroneous interpretation of final office action.

The appellant argued that, "…phrases in a claim must be interpreted in light of the specification...the specification provide a clear indication of the meaning of the phrase, namely, **real-time (rt), variable bit rate (VBR) IP traffic and constant bit rate(CBR) IP traffic**… Type check 24" disclosed in Chang'412 …without taking into consideration the ATM service level of any of the traffic…" in page 7-8.

In response to Appellant argument, **the examiner respectfully disagrees** with the argument above.

In response to appellant's argument that the references fail to show certain features of appellant's invention, it is noted that the features upon which appellant relies (i.e., **real time (rt), bit rate (VBR) IP traffic and constant bit rate(CBR) IP traffic**) are not recited in the rejected independent claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The combined system Chang'412 and Chang'757 also discloses

the real time IP traffic (which is CBR) and non-real time IP traffic (which VBR) as set forth above. Thus, it is clear that examiner is interpreting the claim in light of the specification.

In response to Appellant argument on type check 24, Chang'412 discloses as follows:

The general function of type check 24 is to categorize the demultiplexed signals as non-local signals or as local signals, and then **to categorize the local signals as either synchronous transfer mode (STM) signals or as asynchronous transfer mode (ATM) signals**. "Non-local signals" are signals that are not destined for a local switch associated with optical network routing agent 14d such as an associated ATM switch 10 or an STM switch 20. "Local signals" are signals that are destined for a local switch. Type check 24 categorizes the demultiplexed signals based on the wavelength associated with each group of the demultiplexed signals. (Emphasis added) see col. 12, line 10-36

If type check 24 categorizes a group of signals as local signals, then type check 24 transmits the local signals to a local switch such as associated ATM switch 10 or STM switch 20. From the local switch, the signals are further routed to their respective destinations. In the preferred embodiment, **type check 24 further reviews local signals to determine whether the local signals are STM signals or are ATM signals.** As with the local/non-local categorization, the categorization of the local signals as STM or ATM signals is based on the wavelength of the optical carrier associated with the signals. As also with the local/non-local categorization, type check 24 may "know" that a particular group of signals comprise ATM or STM signals based on the port on which these signals were received. (Emphasis added) see col. 13, line 41-50

Thus, in view of the above Chang'412's type check 24 is configured to route/direct traffic to STM (i.e. circuit switch fabric) or ATM (i.e. packet switch fabric) depending on ATM service category/type of traffic.

Moreover, Chang'412 FIG. 5, step 50 clearly shows determining whether to route the traffic to ATM or STM. Examiner asserts "ATM service categories", in accordance with well establish teaching in art, as "real time signal" and "non-real time signal" services categories (see cited reference below). It is also well establish teaching in art that STM (Synchronous Transfer Mode) or TDM (Time Division Multiplexing) switching primarily switches the real time signal, and ATM (Asynchronous Transfer Mode) switches primarily switches the non-real time signals (see cited reference below). Thus, when determining whether to switch to ATM or STM, it is

actually determining signals whether they are real time or non-real time signal, and routing the signal to either STM or ATM accordingly.

The following prior art references disclose STM and ATM and their corresponding "ATM service category", and routing signal to either STM or ATM accordingly.

Dial (US005570355A)- STM traffic is real-time traffic (e.g. voice, narrow band ISDN, or video), and ATM traffic is non-real time traffic (e.g. delay sensitive VBR); see FIG. 11, see col. 7, line 40-65; see col. 16, line 34-57.

Hluchyj (US006381238B1)- signal processing servers 2 switching ATM traffic (which has service categories, e.g. CBR, VBR, rt-VBR, nrt-VBR) to circuit switch fabric 26 or packet switch fabric 23. See col. 1, line 10 to col. 2, line 11.

Afanador (US006317426B1)- STM protocol, a given user receives time slices, which are at predetermined period time (i.e. real time). In contrast, under ATM protocol, a given user receives time slices at non-periodic times, which may be variable or random (i.e. non-real time); see col. 3, line 25-36.

(2). Claims 28 and 33

The appellant argued that, "…allocating available circuit switch resources, as indicated by a resource table, to received IP traffic requests…appellants respectfully disagrees…remaining …" in page 8-9.

In response to appellant's argument, the examiner respectfully disagrees with the argument above.

Dail discloses allocate available circuit switch resources, as indicated by a resource table, to received traffic request, or allocate the remaining portion of the switch resources to non-STM traffic as a controller route traffic to the switch fabric (**see FIG. 11, allocates ATM/VBR calls in 1101 and 1102; see col. 16, line 35-57; also see FIG. 13-14; see col. 17, line 25 to col. 18, line 34; note that buffer maintains table/registers for allocation; also see FIG. 7, dynamic mark between STM and ATM bandwidth**).

(3) Dependent claims

The appellant argued that, "…submit that the dependent claims are also patentable over the relied upon references for the reasons set forth above…" in page 9.

In response to appellant argument, dependent claims are not patentable over the relied upon references for the response as set forth above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Conclusion

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Ian N. Moore/

Ian N. Moore, Examiner

October 21, 2008

Conferees:

/William Trost/

Supervisory Patent Examiner, Art Unit 2416

William Trost, (SPE)

/Chau T. Nguyen/

Chau T. Nguyen (WQAS)